

Notes on Drifted
Area in Minn.,
Wis., & Iowa

Feb. 7, 1907

Farley 9/2 "
Burlington to
Bellevue, 9/3 "
Foss in Jackson
& Eugene cos.
Ho. Mc Gregor 9/5 1907
Reno, Minn. 9/5 "

7
12
2
Pottsville, " 9/6 "
Hesper to
Decorah 9/6 "
Decorah to
West Union 9/7 "



S. E. Minnesota, - pp. 1-

S. W. Wisconsin - pp. 15-

Fillmore co

Even usually stratified in lower
peaks.

A laminar structure

S. E. Minnesota.

Rep. Geol. Surv. Minn, vol. IV, 1876

Loess Loam, pp. 66-7.

p. 66. - Fillmore co.

(i.e. Fillmore)

The greater portion of the county is covered with this Loam. ---
The loess-loam is very homogeneous over wide tracts, while that in the drift area is subject to local and sudden variations. The loess-loam is indistinctly stratified, especially in the valleys, but the usual appearance is that of non-stratification. This stratified arrangement is rendered less evident from the great similarity of the materials from the top to the bottom. It does not consist, apparently, in any change from coarse to fine in the sedimentation, but in a laminar structure of the homogeneous clayey loam, and is easily obliterated by exposure, or by trickling water. Its condition

was noted particularly at
Preston, and indicates that it
 was deposited in still, or gently
 moving, water. Where this loam
 lies over the old northern drift,
 it passes through a gravelly
stage, the materials of the loam
mingling with the coarser portions
of the drift, and becoming
finally replaced by the drift.
 The drift patches covered by this
 loam, pertaining to the eastern
 and central portions of the
 county, are believed to belong
 to an earlier drift epoch,
 and as far as seen, made up of
 gravel and sand, with small
 stones. No drift clay, like that
which covers the western part of
the county, has been seen overlain
by the loam, except that
which pertains to the general
drift sheet of the northwest, and

which occupies a ^{narrow} belt of 5 or 6
 miles wide, where the loam overlaps
 the later drift. It would be reasonable
 however, to expect that some such
 clay would be found. The pebbles that
 are thus mixed with the lower
 portion of the loam are small and
water-worn, not covered with a coating
of decayed material of the same
nature as the pebbles themselves,
 as they would be expected to be
 if the loam were derived from
 the decay, in situ, of the materials
 of the drift. The thickness of the
 loam sometimes reaches
twenty feet in the open upland,
 and, under favorable circumstances,
 where it might have accumulated
 internally, as well as superficially,
it is much more. It is thickest
in the eastern part of the county.
Vol V - p. 38

Between Sec. 8, Canton, and Seneca - remains
 of the older drift sheet. 2200 ft. or more,
 Canton.

Houston co. vol. V.

p. 7-

"The loam which covers the county is generally almost impervious to water."

p. 11-

"While the loam itself becomes thicker and more clayey toward the Mississippi river, it has so effectively and so deeply covered the whole country that generally a rolling undulating surface has resulted."

Houston, Howard Co. RR
p. 15. Along So. Main St. (projected)

Houston
Houston to Harper.

At Houston, grade of So. Main RR. 717 ft
 Station village 770"
 Line between Houston & Fillmore cos. 1273".

Shale line W. of center of sec. 35,
 Newburg Township - 1116".

p. 19

"The soil of the county is formed of the loess loam." - "Now the loam, generally where it may not have been removed by wash, its average thickness is about 30 feet, but in some of the valleys material of the same depth is

sometimes encountered to the depth of over one hundred feet."

p. 37:

"It is probable that it was during the prevalence of the last glacial period, or just as the ice began to recede so as to produce copious waters, that the loess loam of the Mississippi valley was deposited over this region."

Hennepin County.Vol. V - p. 143

* Loess loam mentioned as present.

p. 156Two distinct glacial deposits
in this county.The limit of the ice and moving
drift of the latter was, toward
the east, not far from the
present line of the Mississippi,
between Minneapolis and
Fort Snelling, passing between
Minneapolis and St. Paul.p. 157 - Second in line

1. Loam - 3-6 ft.
2. Stones, sand - 5-15 ft.
3. Red loam, with stones and
boulders, - the rock - 10-20 ft.

At St. Anthony Falls, near river.

1. Loam - 3-6 ft.
- etc.

Sibley str., St. Paul.

1. Loam - 2 ft.
- etc.

p. 154 -

at
Washington in Minneapolis:
 Sand (loam-loam) 42 ft.

Ramsey Co.Vol. VI -p. 87. -

"That this deposit is the result of widespread diffusion of fresh water, at the time of the last glacial epoch, --- is highly probable."

p. 88

"The loess loam is found in all parts of Ramsey county, and it varies in thickness and in composition. It is thin or wholly wanting in some rolling gravelly parts, and is very thick in some confined valleys. It is sandy, or gradates downward into sand, in some of the northern part of the county, particularly in the eastern part of the Canada, --- It fills some old valleys - indeed is always thicker in valleys than on the uplands. It is occasionally

stratified and passes into sand below in places where agitated water was abundant enough to have moved small materials before the epoch of the loam. In other cases it is placed abruptly unimixed over a coarse, gravelly or boulder-bearing stratum."

p. 87.

"So in Ramsey county the loam has been seen to follow by insensible gradations from a sand or gravel fine gravel, the change being passing from sand to gravel."

Rice county

vol. VI p. 120

p. 120 - loam mentioned.

p. 121.

"The loam is deep, dark colored
and fertile, over nearly all the
eastern portion of the county, but
over the western portion as a
rule it is thin."

Brick clay, and brick yards:

p. 122

Faribault.

p. 123

Faribault

Winchester

Waverly

Northfield (3 mi. out)

14

Wisconsin
Wis. Geol. & Nat. Hist. Surv.

Bull. no. VII (Part I) - Economic Series, 4.

The Clays and Clay Industries
of Wisconsin.

E. R. Buckley, Ph.D. - 1901

Map showing distribution of loess
opp. p. 1.

p. 38.

Wind deposits. - - - - The clays
which occur along the Wisconsin
river near Okeo and Merrimac
are often spoken of as loess deposits.
This, however, if it signifies that
they were wind borne or wind-
deposited, is a misnomer. I am
inclined to believe that these
clays have been both transported
and deposited by water and that
they were formed ^{p. 39} contemporaneously
with the lacustrine deposits. At

many places on the tops of the highest bluffs or ridges near the Mississippi river occur deposits of arenaceous clay which Professor J. C. Chamberlin believes to have been wind borne. These deposits are often closely associated with clays which are known to be of residual origin, and it is frequently difficult to differentiate the two deposits. These so-called loess deposits have not been developed very extensively in Wisconsin for brick manufacturing.

p. 132

Speaks of clays near Bamboos as "incorrectly spoken of as Loess deposits."

p. 161.

"It is thought by J. C. Chamberlin, R. D. Salisbury, and others that the clay occurring on the tops of the high bluffs and ridges extending for some distance east of the Mississippi

river has been carried to its present position by winds. For this reason these clay deposits are known to geologists as "Loess." These deposits of loess are very similar to the brown or reddish brown clay which has been classed in many places over the driftless area as residual. In fact so close is the similarity between the brown residual clays and the loess that it is difficult to map them as distinct and separate deposits."

(The maps show these after Chamberlin)
(See Rand & McNally State Maps of Wisconsin.).

Wis. Geol. & Nat. Hist. Surv.

Bull. IX - Economic Series No. 5.

Preliminary Rep. on The Lead
and Zinc Deposits of S.W.

Wisconsin. - U.S. Grant - 1903.

p. 19 - "Loess and Alluvium"

"It should be added that there are some soils in the district which are not of a residual character. Such are (1) the loess which is found on the uplands along the Mississippi valley, (2) the alluvium on many of the river bottoms, and (3) the overwash glacial deposits which are found along the Wisconsin and Mississippi rivers, but not along the smaller rivers."

Bull. no. XIV. - Econom. Series No. 7.
U.S. Grant, 1906.

p. 19 - Same as the foregoing. Then add.

"The uppermost layer of unconsolidated material over a considerable part of the lead and zinc region is a light buff-colored ^{p. 20} clay, which is rather porous in texture. This is the loess and in this district it apparently is of aeolian origin. This loess mantles the general surface - - - - and can be regarded as in general of the age of the ~~more~~ extensive loess mantle associated with the edge of the Iowan drift. At the same time, in this district there is nothing yet seen to preclude the idea that some of this loess may be of later than Iowan date. - - - -

In thickness the loess varies from west to east, being thicker to the west. - - - - A few miles southwest of Platteville a thickness of three

or four feet of loess is seen,
but this is exceptional for most
of the lead and zinc district,
the average thickness being
probably not over a foot.

p. 52 Loess merely mentioned.

VI An. Rep. U.S. Geol. Sur. ²¹
1885 -

The Driftless Area of the
Upper Mississippi Valley.
J. C. Chamberlain, & R. D. Salisbury.

Map showing loess in Wisconsin, etc.
Pl. XXXIII.

p. 286:

"In the southwest quarter of section
26, Bloomington, Grant County, Wis.,
occurs

Succinea avana.

Higher Terraces:

Bridgport, Crawford county,
near the mouth of the Wisconsin River,
appear.

Succinea avana Say

Succinea obliqua Say

Limnophya humilis Say.

Patula striatella Anth.

Vertigo simplex Gld.

In section 34, Ellenton Twp., Grant
county --- Succinea avana Say. ⁴

In terrae along Platte River, Wis.,
are Succinea obliqua
Pupa muscorum.

Notes, near Farley, Ia. 25.

July 31-1907

Left Iowa City, with Prof. Calvin,
at 6.25 AM. Reached Farley
about noon. Took dinner at
the American House.

We drove W. from Farley, then S, E.,
& N. to Epworth, & west to Farley.
We followed roads marked by dotted
line. ^{on county map.} The topography W. of Farley
looks down, but it may be an
undrained Kansan area with
boulders at the surface.

S. & W. of Farley (see line on contour
map) is a distinct bluff or ridge
marking the border of the loess-
capped Kansan. This is typical
rolling Kansan, and as soon as
we entered it we could see yellow
loess on the surface in the road.
None of the loess seen today was
fossiliferous, and very little showed
small calcareous nodules.

Cut 1 is on the wagon road on W. side of SW. $\frac{1}{4}$ of sec. 23, Dodge Twp. It is on a rather long hill running up towards the south, & the E. side is better, & was observed. It exposes 3 to 7 ft. of loess (about 3 ft. at top of hill), but loess is thicker.

The lower part of the loess is rather heavy, has a few root-tubules (red), and the lower part is bluish interlaminated with ^{irregular} lines and bands of red.

The exposed, somewhat eroded, surface shows a distinct stratification, which is scarcely perceptible on shaved surfaces, but distinct on broken surfaces. This is probably still a part of the yellow loess, although with many blue-gray bands and lines in

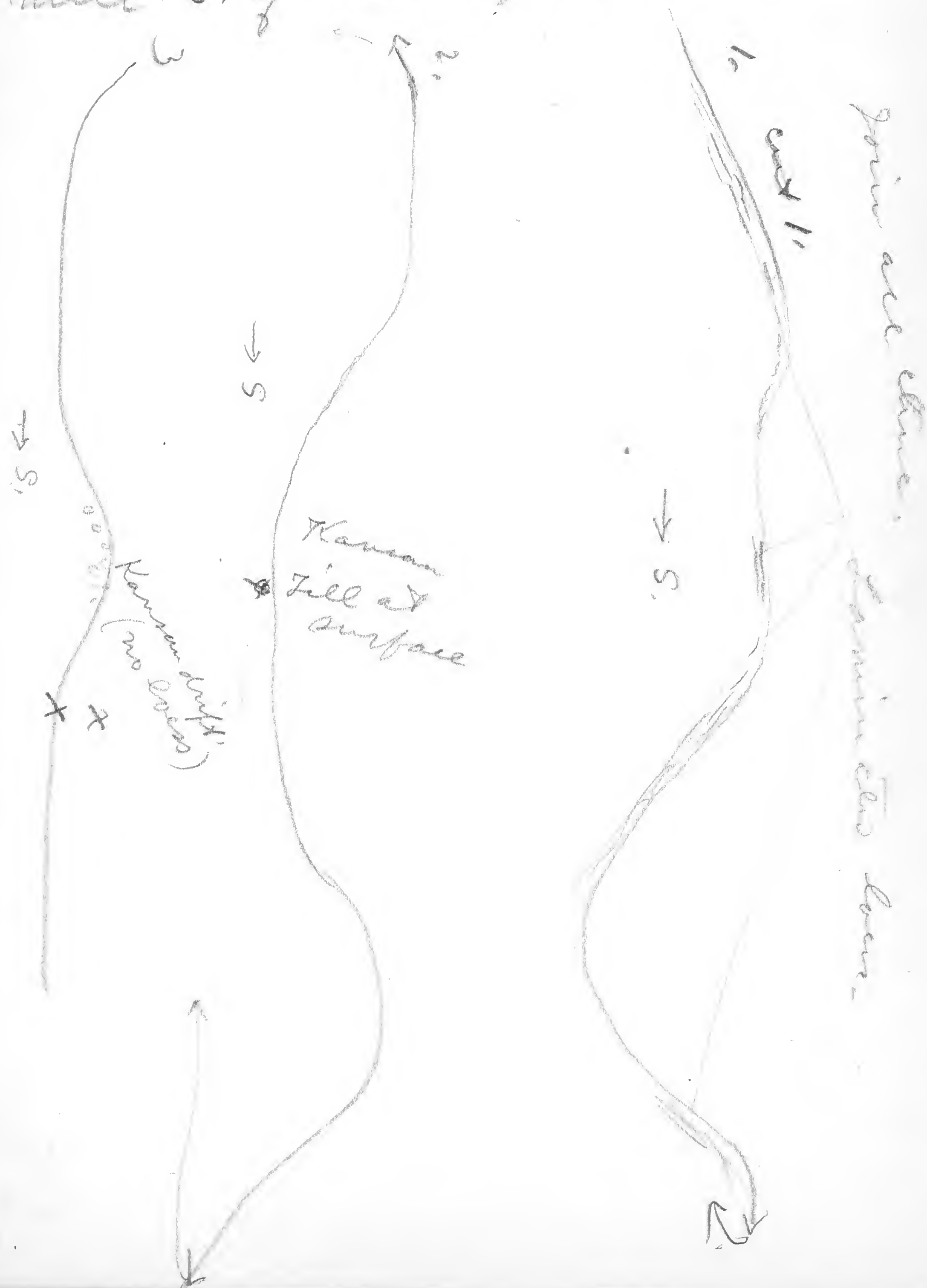
the lower part. This stratified yellow loess is everywhere the lower part of the yellow loess, and it almost uniformly follows the vertical contours, this being here very regular.

The upper 4 ft. of this cut shows no stratification, but is lobular & crumbly. This upper part is uniformly redder.

Took samples of lower loess at 6 ft. below surface of bank (top) and one of upper loess 3 ft. from top.

These samples were taken from point about $\frac{1}{3}$ way up hill, & a photo, M was taken to show lamination, at same point. (over)

The yellow laminated loess follow the vertical contours very regularly for about a mile S. of cut 1, to X.



S. of X the topography is flatter & there is no loess. This is lower than hills north, & was probably an undrained area while loess was forming elsewhere. There is some gravel also visible here, & chert (local) etc. is mixed with Kansan in low places.

Prof. Calvin now considers all the territory South of (X) as Kansan. This rather low area also has much fine sand in road.

About N. 1/2 sec. 2 cascade Mts. rougher territory sets in. A few deep ravines or canyons in solid rock appear, as in sec. 1. Near the center of sec. 6 (1/2 west) in Whitewater Twp. there is

no loess at surface, but sand in road in highest places. This extends E (at S. of this line running E. along road) to the E. side of nc. 6, & even beyond a sand-dune topography appears, & sand, loose & fine, is found on highest ridges. Loess is here seen only in slight pockets on slopes, most of the surface being gull or sand. The creek valley here is also very sandy.

At Z there is sand on ridge 120 ft. above creek, & on E. side of creek the sand is much eroded because of deforestation.

See photos 15 & 16 looking

E. from X.

Where gull appears it is old, weathered, usually red, &

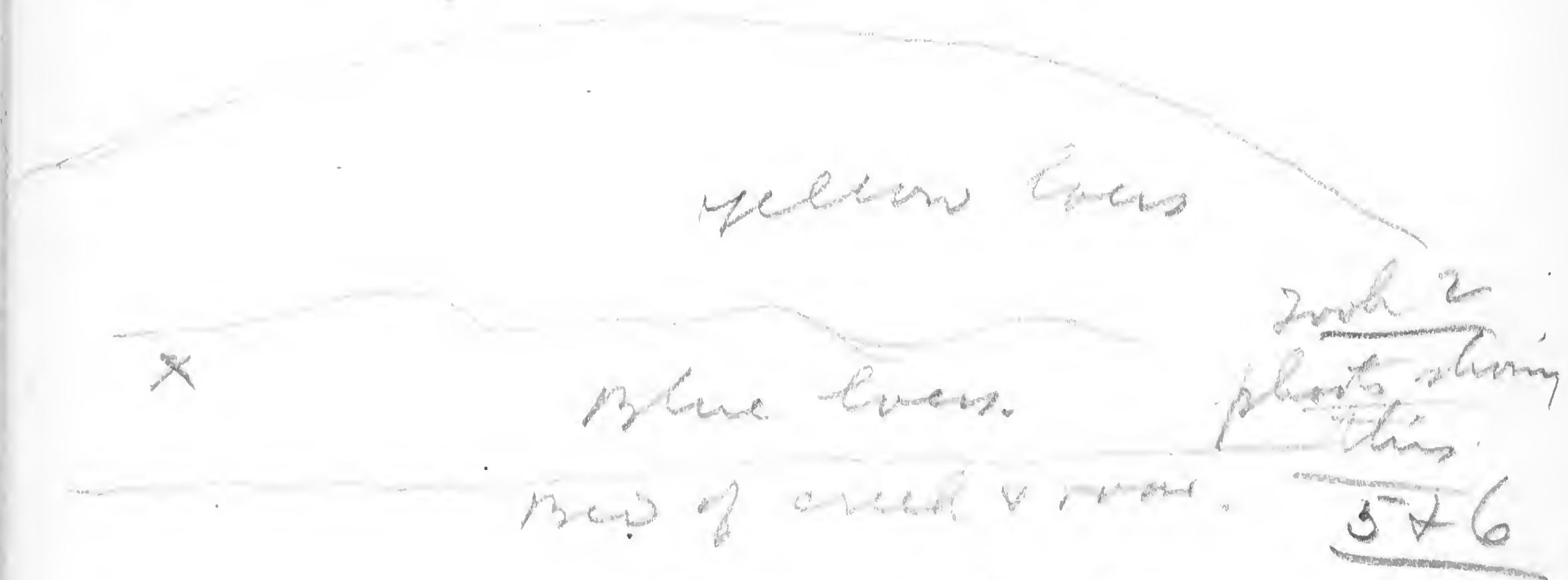
with pieces of chert, etc.
Rock here crops out high up, & nice cliffs appear N. of road along creek, on E. side.

The road N. in $2\frac{1}{2}$ of nc. 6, Whitewater trap, soon drops down to a creek now used as a road, near bed, now as a road, near trap line & north. At the S. end of the part of the old creek bed now as a road the creek eroded a bank about 15 ft. high (on W. side) which is Cut 2.

This shows about 5 ft. of blue loess below. This loess is partly like, with very many large iron tubules, no nodules

32

or shells, & here without
iron band at top, but
line between this upper
loess is sharp & shows
lack of conformity.



Took photo at X,
Took sample of each loess,
The blue loess is laminated
(when broken).

The upper loess is yellow
& almost without lamination,
It contains a few small
cherty glauconitic nodules in lower part.

The old creek bed (4 road³³)
gradually rises, & until
it reaches creek in S. 1/2
of sec. 31 Taylor Twp. the
blue loess may be often
seen below.

After the creek is passed
& the road on the straight
north shoot goes up over
a knob, which shows chert
& Kansan pebbles & boulders
on surface. From here to
cut 3 there is no loess, &
chert & drift pebbles (Kansan)
at surface.

Cut 3 is on a slope going
down toward west & in the
upper part (near top) is just
like cut 1, lamination & all.
The top^{of hill} is cherty & pebbly at surface.

Cut 4 is just E. of school
in sec. 32 Taylor Twp.
The hill is quite steep &
slopes down toward E.
The loess is laminated &
follows contours, as in cut

1. This is exposed in upper
part (near top of hill). Lower
down blue loess with big
iron tubules is exposed.

On the upward slope
(toward E.) the blue loess
also shows, & one other exposure
eastward shows it.

Cut 5, is north surface exp.

It is on a big hill on road
north, sloping down to north.
Yellow loess rests directly
on Kansan & there is

no blue loess.

Cut 6 - on down slope to N.

It is essentially the same
as cut 1, laminated below.

Cut 7 - in low down, rising

out of small creek. The
very base (1 or 2 ft) is blue
loess ^{on red silt or drift}. Its upper part is mixed

blue loess & ^{upper} ~~loess~~ ^{lies of pebbles} &
above pebbles is yellow loess.

This mixing between blue
& yellow loess is probably
caused by floodwater creek.

There is an iron band
between mixed loess & yellow
loess.

Cut 8 - on hill, at base (S
of it) is essentially like 1.

Cut 9, is around turn, on
part going E, & is same
as cut. 1.

In sec. 28, N. of creek, top
Taylor. the drift comes
to top of hill. No loess.

Cut 10 - is like 1

Cut 11 is like 1

Cut 12 - Kansan drift shows
well, & on this 4 or 5 ft. of
yellow loess on lower slope
of hill, going up toward E.
At about the middle of hill
the blue loess with big tubules
appears below. At top
only yellow loess shows.

Cut 13 Runs up hill north.

Shows blue loess with iron tubes
& above is yellow loess. The line

following contour of hill.

Cut 14 on slope down hill toward N.
Shows blue & yellow loess
as in 13.

Cut 15 - on slope up hill to N.
Like 14.

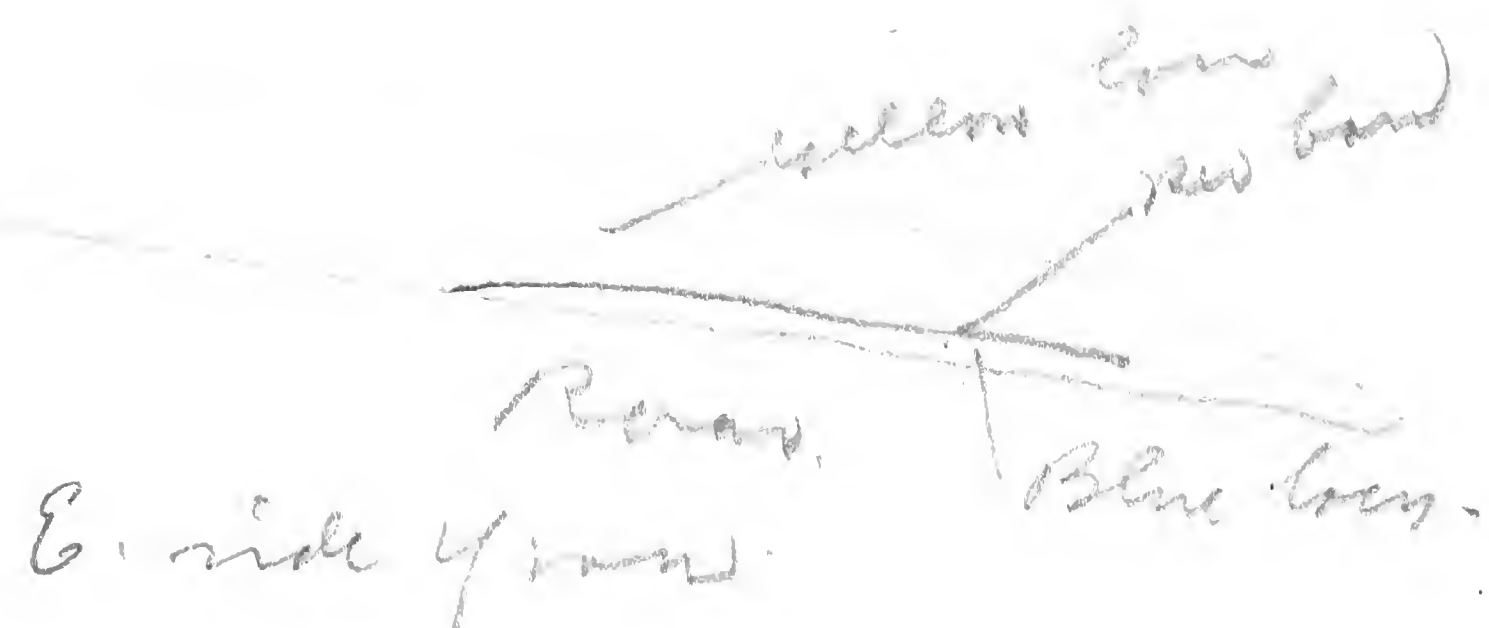
Between 15 & 16 there is
a little hill with Kansan
at surface on top.

Cut 16. This is a cut on a
shallow slope up toward N.
In the lower part a distinct
blue loess (tubes & all) is
shown for 1-2 ft. It does
not quite follow contour, but
dips in to meet 17.
The upper line of the blue loess
is marked by a very sharp
band of iron - This was
harder & projected a little to

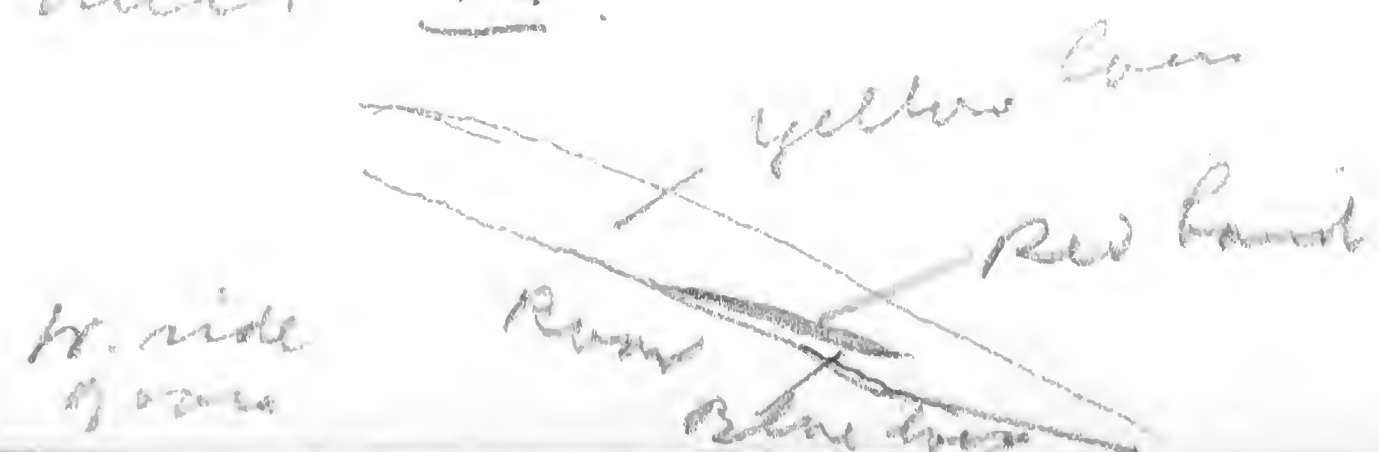
form a sort of shelf. It is
1 to 2 in thick.

Above this is the usual yellow
loam, laminated below & lobular
above. 5 to 7 ft of it exposed.

Took photos ^{related} nos. 17 & 18



cut 17 is on N. side of same
ridge. On lower part of same
abrupt slope it shows the
blue loam below, with big
iron tubes & stronger iron layer
above, running into hill again
to meet 16.



cut 18 is on slope up Town³⁹
Epworth, just entering from
S. It is wholly in yellow
loam, which shows lamination
in lower part, & upper part
lobular.

From ^{about} cut 6 to Epworth
there is little sand or drift
(or chert) showing at surface,
this being most the yellow
loam, which almost uniformly
follows vertical contour, is
laminated & compact below, &
loose, lobular & often deeper
reddish above. It seems to run
about 3 to 7 ft. deep.

In the town of Epworth
 there is loose sand on the
 top of hill on which village
 stands, & all the country
 between Epworth & Farley
 along the road shows loose
 sand, often on tops of ridges.
 Occasionally Kansan drift
 well-defined, appears at
 surface, this sometimes
 mingled with chert.

In a few places rock is exposed.
 The topography is decidedly
 Kansan, being rolling, with
 occasional dune-like structures
 on tops of the sandy hills.
 Evidently this is dune
 sand.

Spent night at Farley at
 American Home.

Aug. 1-1907

Prof. Calvin left, to meet me.
 Left for Epworth at 9:45 AM.
 started E. from Epworth.
 The country is rolling (Kansan
 like) & covered with yellow loam.
 Going out of Epworth (on hill
 on which town is located) I

saw again some loose sand.
 Cut 19 is on W. side road just N. of RR. It shows yellow
 loam even clearly laminated below.

Cut 20 is on a long slope (its upper
 part), going down toward E.

(This is probably
 the same cut
 saw a fragment
 of same above?)

But exposure - but even
 better on W. side of road.

Its upper part is yellow & the
 lower part of this on the slope
 shows lamination with contour.
 It is especially noticeable on W.
 side of road, where the yellow loam
 grades down by interlaminated blue
 & red layers, into blue loam. These
 layers are just like in cut 1.

new top of
 hill lamination
 and under -
 do not follow
 contour

42

a little of the blue loess
shows in lower part of this
mixture, & it has large tubes.
Plates of iron (with contour)
occurs in the lower part of
transition mixture.

Cut, 21 - First up-hill slope

E. of cut 21.

E

W.

The first section of hill which
makes over $\frac{1}{2}$ the slope, is
quite abrupt, & about $\frac{1}{2}$ way
up this part on W. side a nice
lot of Kansan is exposed.
It is the upper about 2 ft.
of very red stuff, with boulders,
etc. It is evidently old.

I could see scarcely more than
traces of blue loess here.
The drift is covered with yellow

loess, - laminated below, to ⁴³_a
depth of 6 or 7 ft., & follows
the contour.

In upper section of slope saw
only yellow loess.

Going S. on E. side of sec. 12,
betw. wagon road & RR.



Cut. 22 shows only yellow loess
Kansan below.

cut. 23 is at base of slope &
shows a foot of blue loess with
big tubes. Above it 6 ft. of yellow loess.

laminated below.

Upward a little only yellow loess shows. The line here is not sharp, but there are iron layers below. Cut 24 is near base of

long slope & shows about 6 ft. of yellow loess, crumbly above, laminated below. Follow contour.

Below, the blue loess is just exposed, but shown clearly. Big tubs very common.

On road N. of Centralia, after leaving first fork, there is considerable cherty stuff (seemingly no drift) exposed just under the yellow loess.

The latter is of the usual type, - laminated below, etc. After 1st turn in road N. of Fork, the road runs up hill (on part of this curve) & then down again in N. part of sec. 34.

As this part is cut 25 - This shows 2 to 5 ft. of normal yellow loess, with a little blue loess with tubs, etc. exposed below. Cut is not deep. There is a thick iron band or rather a series of bands at upper part of blue loess.

Crest 26

On next slope up (N.)
 about 6 ft + of yellow loess
 is exposed near foot of hill
 & under it a foot of blue
 loess - usual - some tubes, laminae
 etc. Between the two is
 a band about 8 in wide
 which is mixed - a transition
 the yellow loess in this
 exposure in places has
 many very small lime nodules
 in lower part.

The yellow loess is laminated
 below & follows contour.
 This is in sec 27 just N. of
 section line.

Crest 27 is on up hill slope
 toward the cemetery & church.
 It is yellow loess, follows
 contour, & shows lamination
 below.

On N. part of sec. 27 & up
 to center of sec. 22 there
 are a few very cherty exposures
 & only one of this, just N. of
 turn S. of center of sec. 22,
 seems to show a few dark
 green pebbles - like drift.
 Rest looks driftless.
 On all of it there is
 the same yellow loess
 laminated below.

48
Sec. 28

Road W. of crossroad at
center of road
there is a chunky exposure
with a very few foreign
looking rounded boulders
pebbles. Saw only 5 or 6
On top is 4 ft. of crumbly
yellow loess

Photos 31 & 32

Looking down river from
Winn Spgs.
outlook on

Photo 27

Rock out
Red sand on rock

49

Sec. 29 - In sec. 14, just S
of 12th house on right hand
Divide, ^{pathway} up the hill.

About 4 ft. of yellow loess
grades (by interlam. of iron,
into blue loess - 1 ft. with
few large iron tubules,
about 1 ft. of blue loess
exposed on W. side of road.
a little below this (W.) there
is chert in the road.

This is a sort of terrace
of the hills are much higher
from top to big hill W. of
fork in road took photo

g. 2. no. 5 } Sunf
W - marks }

Aug. 30 - on first slope
 of big brick house near
 up going N.E. ^{on road}
 leading to right from
 center of sec. 22

This shows 6 or 7 ft of
 yellow loam, distinctly
 stratified (with m. f. c.)
 below.

The slope the other way,
 just S.W. of it shows
 red rock at surface.
 Chert also shows in
 this region.

This cut is on first drift (going up)
 N.E. of the brick house at fork
 in road at center of sec. 22.

Made the return to Epworth
 by way of Centralia.
 Lunched at Epworth & met

Mr. March there. He is working⁵¹
 for the summer in a restaurant
 & ice cream parlor.
 Made the trip to Farley.
 I was particularly impressed by
 the amount of sand, and of
 distinct Kansan drift, with
 big boulders not uncommon,
 especially on ridges. Occasionally,
 however, rock and a little
 peat appeared.

The big hill from which
 photos were taken seems
 to rise almost as high as
 anything in sight - but
 westward across the broken
 lower plain there rise ridges
 with a suggestion of a mesa
 effect! S. eastward the country

is less broken, but still rough.

I notice that in this splendid panorama the fact is revealed that in this part of the country much more small grain than corn is raised.

This was verified by inquiry.

I can see no difference between the yellow (or blue) loam all over the chert beds and that in Kansan.

Aug. 2 - 1907

trip by team westward.

At 31 a cut of a couple of feet shows sandy black loam, with occasional pebbles + grains of sand at surface.

All along are also dark weathered (Kansan) boulders.

In C. Gr. W. RR cut at

32, Kansan drift, with blue pebbles & mudstones shown up to within 2 ft of top. The lower foot of this trip looks heavy - (see sample), but not much. It is almost like

heavy joint clay. This cut is just S. of the line. Along road are many large Kansan boulders - lined at fence. Prof. Colton took photo.

The plain extends to the
E. side of sec. 4, where
the chain of hills notices
S. (see miles of July 31) sweeps

westward. This rough
ridge territory then extends
practically to Dyersville, the
latter being in a valley on the
far side.

This ridge shows chert, &
also rock at the top, &
there is more or less fine
sand.

In more sandy places
Quercus velutina grows, on
the more clayey portions it is
white oak. Saw stay horn
sumach.

starts W. & S. from Farley.
Went to Buchanan gravel
pit between two RR's & on
the road N. & S. west of
Farley.

Followed Iowa River &
crossed into Kansas, &
Nothington.

P.M. went W. of river & then
on N. & S. road. Along S. - a mile
of miles - on first big hill,
saw yellow loess - 6 or 7 ft
deep. loose, sandy, showing
blue spots & streaks below, &
on weathered surface showing
usual laminations of yellow
loess in this part.
Elsewhere much sand or
sandy loess.

The road passes over this broad ridge & drops down on S. side to a creek with rocky gorge. On the S. slope of this hill (n. of creek) near top 7 or 8 ft. of the yellow loess is exposed. On the slope is south laminated loess appearing in lower part. All the topography Kansan here. Also saw few rocks in numerous places.

The "creek" is only a pebble gutter in the rocks. This gutter is a $\frac{1}{4}$ of a mile N. of 1st bridge below Worthington.

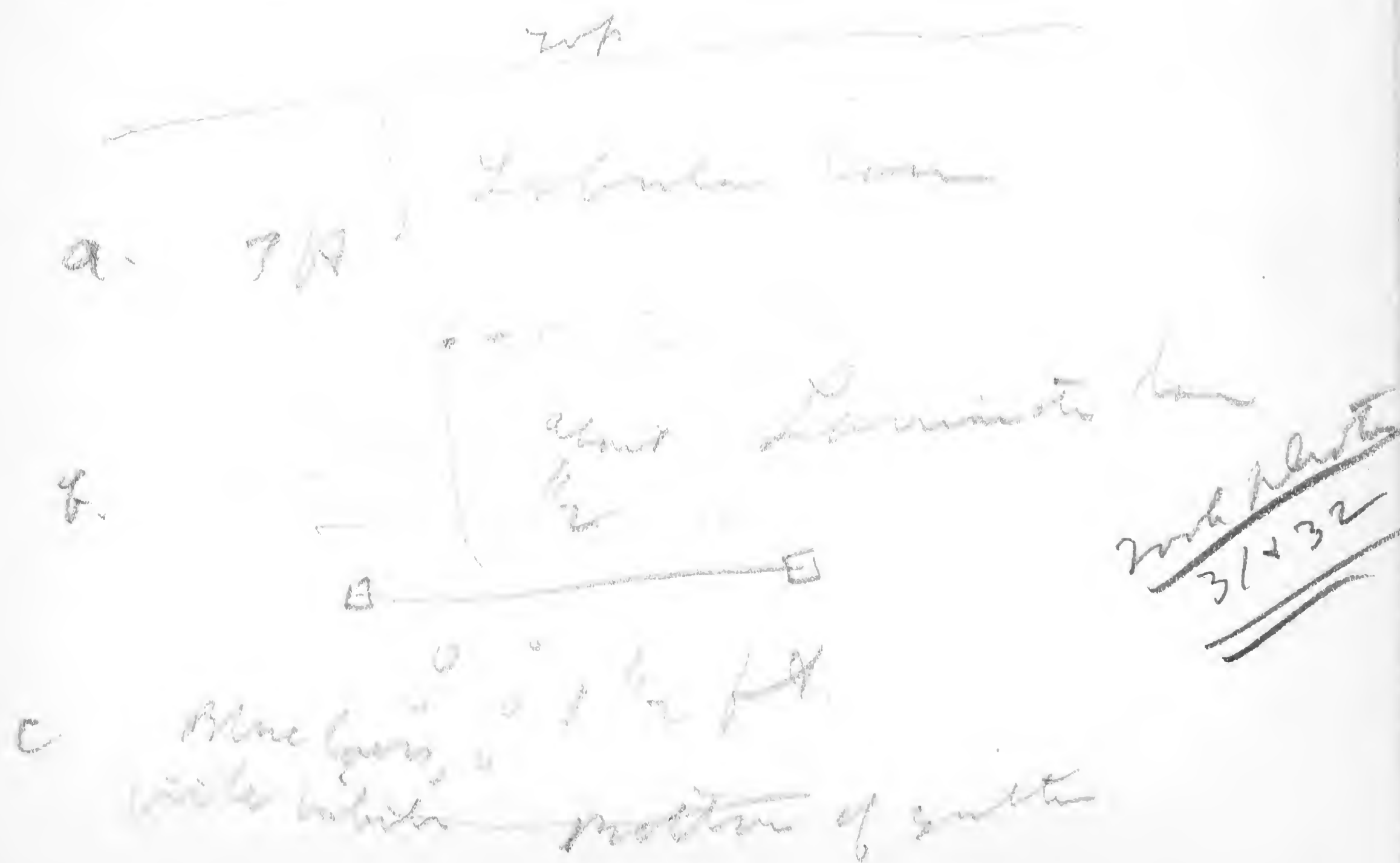
("In the Buchanan pit W. 57 of Dyersville many feet of the river phase of the Buchanan gravels was covered with about 2 or 3 feet of material just like in cut 30. + on this all over the plain were scattered boulders. There had the aspect of Kansan boulders (just like those on Farley plain), were dark & old for the most part. This whole plain is low so it is not possible that floods from the down ice picked up Kansan boulders & scattered them over this plain?)

This is near base of
slope up from the
gutter - 15 or 20
ft. of the same yellow
sandy, loam shales.

It thins upward, but
runs to top of high hill
east of canon road, but
is evidently thin up
there as dust shows.

This ^{yellow loam} is somewhat stratified
in lower part even near top.

Came back to cut 1 -
about $\frac{1}{2}$ way down the
slope & a little below
our exposure of the
1st day I made a clean
section.



The lower part of the yellow loess for a couple of feet shows blue inter laminations, growing more abundant down. At dividing line there are narrow iron lines & change is quite sharp.

No tubs in upper loess

took samples A, B, C.

B - 1 ft above line

C - 1 ft below line

This has a piece of rock in it with an iron tube around it many lines in diam

A is the same as my lobular sample of May 31

Quarter part of the hill residual material - very red & clayey, comes out.

cut 34 - 1st cut n. of turn - W. side as we came from W, 1 mi. S. of Fordley
cut 35 - 2nd cut n. of turn - up hill larger cut.

cut 36 - cut on hill leading down to plain in N^W corner.

All these show yellow loess, laminated below. On the flat n. of cut 36. claret and mixed drift again show.

Aug 3rd 1907

Left Dubuque for Bellevue
at 8 am
all along to Jordan Ferry
bluffs are abrupt, with rocky
ledges & headlands, and
densely covered with vegetation.
They follow river closely, mostly
just giving room for Milwaukee
RR.

Saw struthiopteris in patches
on the banks all along, -
in both Dubuque and Jackson
cos.

At Jordan Ferry saw *Cystopteris*
bulbosus & *Pellaea atropurpurea*

Bluffs run nearly same

to beyond Smith's where
they recede & leave wide
plain. Then the plain

narrower, but bluffs are
low, Kansas like
knobs - The RR cuts
across this, leaving river,

Reached Bellevue at 8.46 AM
Stopped at Wreck Hotel.
Started for Bier at 9.30 AM
~~August~~

Cut 1 - This is in sec. 24, T 3
near the top of the hill -

perhaps 20 ft. below at
point where I took photos

27 & 28

The loess is here yellow
(like that in section in
every way), 3 to 5 ft. deep,
following contour, laminated
below, & resting on a
layer of reddish sand the
finer part of which intergrades
with loess.

There are streaks & bands, as
if of rock & mixing, in a
band about 6 in wide.

The gull line is only a
couple of inches above
road line in photo.

Sample a - cut 1 was taken
1 ft. above gull

Sample b cut 1 is gull
with bands of loess.

The lower 2 ft. of

loess is compact &
shows some lamination
on curved surfaces.

The upper part is loess.

The loess extends quite
to top of hill, but this

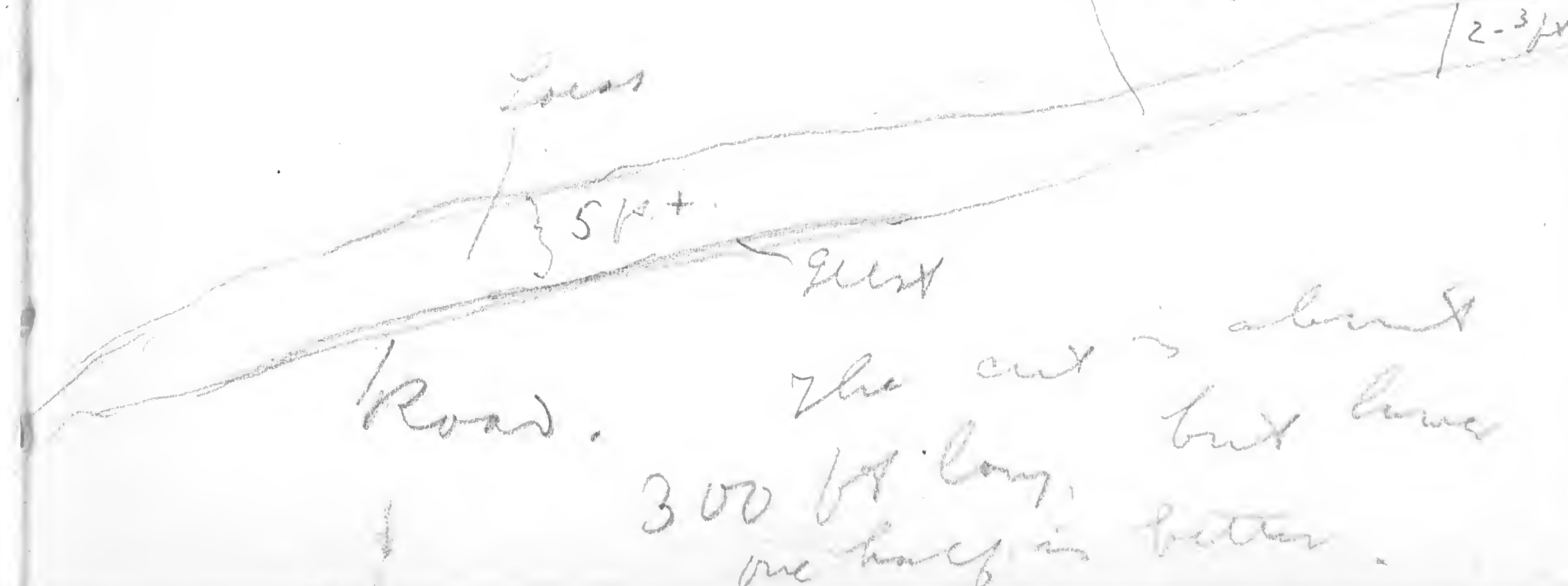
cut. ~~over~~ 300 ft.

long exposure.

S.E. side cut 1

about 1/2 of bank
or 20 ft.

12-3 ft



Road.

The cut is about
300 ft long, but lower
one half is better.

After you get on top
of hill the country for
miles is typical Kama
topography
at cut 2 on an up slope
to SW. on small rise (high up
on this ridge however) there
is plain Kama till,
with many boulders, etc.
Everywhere else I encounter
yellow loam in the road.

Cut 3 is on road, just S. of
farm house (on W side) & going
down first hill (on which house stands)
This shows several feet of
yellow clay & the dense
blue clay, with big iron tubules

is exposed in road bed ⁶⁹
in side gutter. The road
is on it.

Cut 4 is on a long hill
running S. of road to west.
About a quarter of the way
up from bottom the
following section shows on
E. side.

Summit.
174 soil
260 yellow loam
3 or 4 in blue loam & 2
chocolate
5 ft. { Kama drift shows below
Row. into Kama.

Where the drift is not seen
& the loam is thicker.
In all places marked "drift"
on map this is exposed on lower
slopes or sides, & loam is on top.

Just n. of $\frac{1}{2}$ m. line is
cut 5. This shows loam
on top of hill, but on slope
(to south) the drift comes out
to surface. Boulders are common,
but none very large.

Cut 6 Is the next slope
up. It shows a red (oxidized)
fine Kanran drift, with
larger boulders in lower part.
On it, & following contour
very regularly, is a yellow
loam, - about 2 or 3 ft.
thick. The line between the
loam & drift is quite
sharp, & the drift shows
here a thin layer of very
red joint clay with pebbles.

cut 7- Slope down - next
one 5. - This is very
similar to 6.

Cut 8 is first slope up,
north of cross-roads, just n.
of Spring Brook, - n. central
part of m. 21.

9 + 10 show red Kanran
below, yellow loam on
top, and a blue mud
almost like loam, or like
lower connecting part -
3-6 in. This is heavy loam.

Yellow loam appears everywhere
on tops of ridges.

Bed rock (below drift) shows at
8 + 10.

Cut 11 (Savanna's cut)

This cut is just at the foot of the long hill leading down to the first little creek (a fork) ~~near~~ the old Rollins Mill.
Took photos 5 & 6 - new view

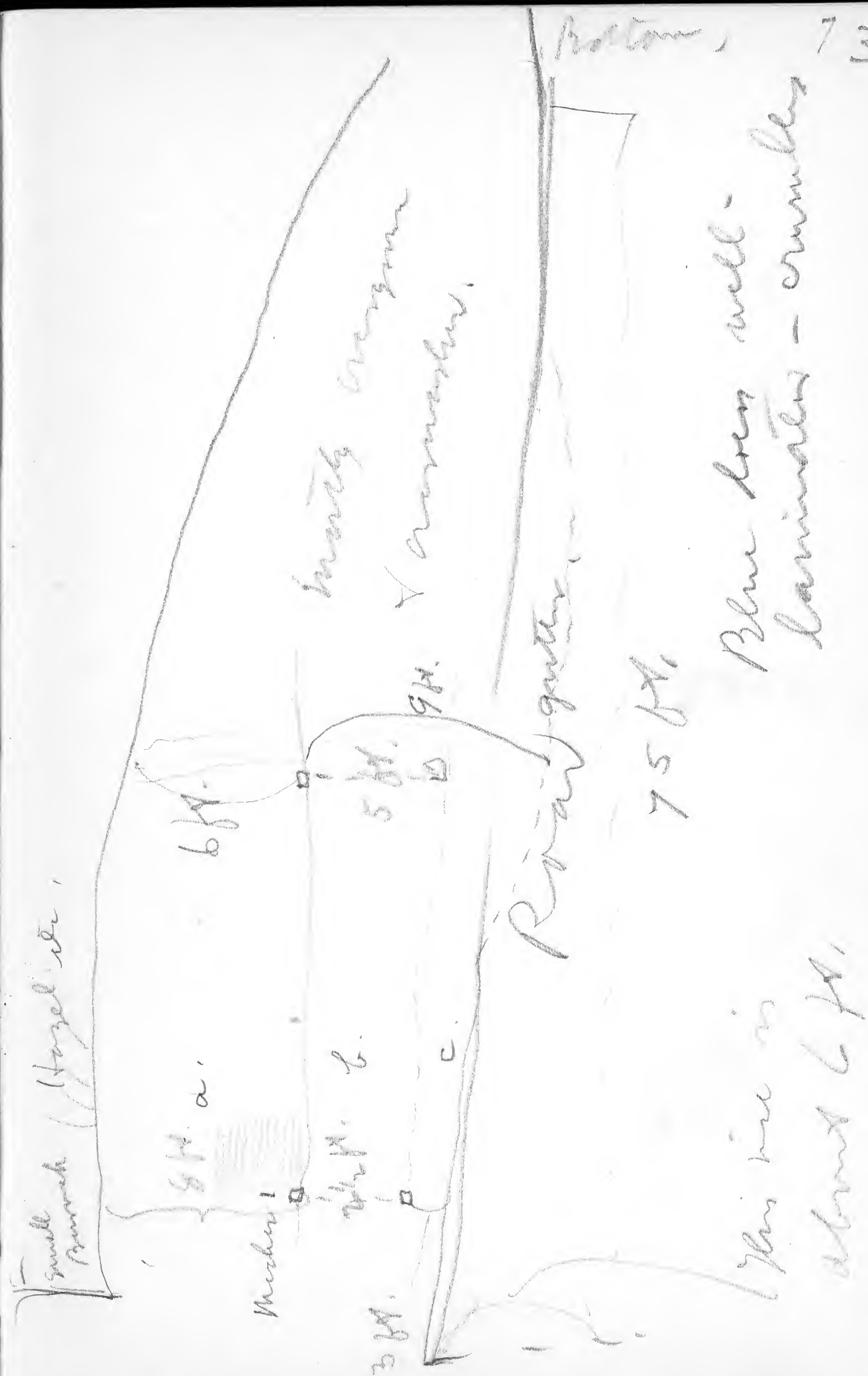
+ 17 & 18 a little further away.

It is on E. side of road, and shows usual yellow loess above, (a)

a) is below above, but stratified in lower 4 ft at left, - less toward right.

It is the usual yellow loess. Took sample 11(a) about 2 ft above top.

Below this is blue loess, which divides indistinctly into two parts,



74 but there are one locs.

The part enclosed in marshes (b) is blue loam with big iron tubes. There are scattered fossils in this, more abundant however, though I found a few upward - near top of this layer, and they extend down into C. as low as I could get at the center of my cleared place - $2\frac{1}{2}$ ft below lowest line of marshes.

Took sample about middle.

C is like B, but some shows all signs of root-tubes downward. It is yellowish instead of blue, -

75 having iron diffused through it. The fossils are very fragile & mostly crushed.

Took sample 1 ft. below lowest marker to right.

This is on E. side of road.

The two loams are very distinct to the right. To the left (of my clearing) the iron bands are a little interlaminated, but still the loams are quite distinct. It will be noticed

that there is a lack of conformity between the

two loams. I dug into gutter but could not get past drift or rock. On the hill there is some rock etc. exposed, above my section.

176

On return trip from
bare rock near top of 1st
hill going N. At very
top it has a little
yellow loess.

All the rest of the way more
or less yellow loess
appeared covering the hills.

On most of lower slopes
either grass or rock abundant.

The bed of loess at end
" is the deepest I have
seen in the country.

Saw trees ^{etc.} in Jackson Co.
Aug. 3 - 1907

Betula sp. ^{sp.}	Black Locust
Prunus	Green Ash
Prassnow.	Cottonwood
Red Elm	Box Elder
Wh. Elm	Sycamore
Carya amara	Sawtooth
" alba	Salix nigra
Populus tremula	Wine bark.
Hard maple	Black Cherry
Red Oak	Choke "
Yellow Oak	Wild Grape
White "	Rose black
Box "	Wild Crab.
Red Cedar.	
Corylus alternifolia	
Hazel.	
Smooth Elm.	
Va. Creeper	
Persea frag.	
Morus nigra	
Spring "	

Trees in Ontario 40
July 31 v Aug 1-2-1907

White elm
Hard maple
Prickly ash
White oak
Glaucous hollyhock
Red cedar
Red elm
Bog alder
Soft maple
White oak
Va. creeper
Pawson Elm
Hazel
Juniper
Staghorn
Wild grape
Red oak
White "
Yellow "
Maple "

Mo. gambel
Wild plum
Black cherry
Choke cherry
Black willow
Saw bay
Salix discolor
" humil.
(Prunus)
Green ash
Rosa blanda
Ribes flouidum
Aster umb.
Black walnut
Populus grandidentata

I left Billerica at 10.⁴² AM
+ reached N. We Greyn at
2 AM.

Put up at The depot
hotel (which has an annex
for rooms, called "The Berry").

The clam-fishermen at
N. We Greyn (as elsewhere)
commonly use an iron rod
6 or 7 ft long with a lot
of "may-bush" made of wire,
not sharp-pointed, on staves
about 8 in long.

Aug. 4, 1907

Went down along river + picked
up clams.

On low ground near:

Salix interior (densifolia)

" *aristata*

Cottinus

Erythraea

Rhus

Amorpha fruticosa

Salix nigra

Elder

Took photo 19 - showing
bluff on of town + the
pontoon (draw) R.R. bridge.

The fore part of the day was
clear, the latter half
the afternoon cloudy, with
a little drizzly rain.

82 AM, went to top of bluff
N. This is 220 ft above
the street (level of RR)
From top my level strike about
middle of bluff on Prairie du
Chien side, so that they are over
400 ft. I can see my
terrace or plateau at
Bridgeport.

And on top of my index
is the usual penicillin open
top.

On bare prairie tops:

Petalostem violaceum

Potamogeton candidus

Comandra

Achillea canadensis

Verbena stricta

Morone

Erigeron strigosus

Thalictrum - small

Helianthus patens

Achillea

Eupatorium

Helianthus nigrescens

Quercus americana

Lepidosaphis

Lepidosaphis pinnata

Asclepias tuberosa

Panicum (hairy)

Antennaria (Indian Tobacco)

no. 19 Looking up the river, - bluff
N. of N. Ave. Sugar. Pontoon bridge.
Aug 4/07

Look photos -

no. 20. Looking a little S. of Prairie
du chien. My Bridgeport terrace
is to right

no. 31 - Looking E. over Prairie du chien

no. 32 - Looking up the river

no. 27 - Looking obliquely across
river above Prairie du chien

no. 26 - Looking down the river
(obliquely across)
from bridge pt.

no. 5 - from pt. just over town.
Looking down river

no. 6 - Stephen's house

no. 17 - Limestone ledge with
Cyrtopogon & *Pellaea*
canadensis

no. 18 - Road between limestone
beds.

The base of the plateau
N. the base (& running
far north) is cut up
by gorges and little
channels. It is mostly
timbered, but there are broad
open when flatlands (widely
lower).

The rock in some beds
seems to be about on a
level with the outcroppings
on Wisconsin side.

The bluffs on some hills
are uniformly densely
timbered.

Went to a peak near V
found it about 330 ft.
From the north up to
St. Peter S.S., with lots of

loose sand
White Birch & Polydora
grow on it.

Went up hill N. of
N. the lowest
part of the hill has a little
On the top a little
loose red soil.

As you go down the road
cuts do not show any
traces of the old
be seen.

loose clay
more or less on the surface.

It is the usual yellow loam,
laminated where water has cut
down, & lobular above.
Took sample from top, and
one from the bottom.

Handwritten text on a piece of paper, possibly a receipt or ledger entry. The text is written in a cursive script and includes the words "Handwritten" and "Receipt".

The large island opposite
N. McHugh (running
far north) is cut up
by bays and little
channels. It is mostly
timber, but there are broad
green open prairies (evidently
lower).

The rock in some bays
seems to be about on a
level with the outcroppings
on Wisconsin side.

The bluffs on some sides
are uniformly densely
timbered.

Went to a peak NW. &
found it about 330 ft.
From this made up of
St. Peter S.S., with lots of

loam sand.
White Birch & Polypodium
grow on it.

Went up long hill N. of
N. McHugh. The lowest
part shows rock.
On lower slopes a little
loam - 2-4 ft appears on
red gneiss -

As you ascend the road
cuts down to rock, but
traces of gneiss & loam can
be seen. The bank shows
loam down to top, but
more or less variegated.

It is then usual yellow loam,
laminated where water has cut
down, & lobular above.
Took sample from top, and
one from bottom.

88 call top 475 ft above street
at 300 ft. ft. low
sample 3 ft. below
surface, where loess
begins to show laminations
In a little gutter the
hard loess below was
shown, with big black
tubes, numerous by iron
ring.

I traced regular layers of
loess to about 230 ft. level.
Lower than that patches occur
only.

Low made base of hill at turn
in road 40 ft. (Dept road 50).

The highest point in Long hill
is near the 1st road turning to right on
top, & is marked 1096 ft. on the
topographic map.

The Miss. is $1\frac{1}{4}$ to 3 mi⁸ 9
wide along this co. (see
Leonard's co. report).
It does not furnish good
bars for winds to act on &
amount of sediment is
not to be compared with
Missouri. At the mouth

of the Wisconsin are large
bars at low water & this
where the Bridgeport loess
came from?

It is more & more evident to
me that the loess in this part
of the state did not come
from bars (the stream have
narrow rocky valleys) but rather

from glacial plains covered
by remains of St. Peter S.S.
The long hill road shows nicely how
thin the loess veneer is (2 to probably 5 ft.,
though lower down it may be more locally)
as well shown in road-bed almost to top.

My readings:

R.R. cut depot — 0.
Top of ridge just N. of
town — $\frac{220}{\text{subtracts } 20 \text{ ft.}}$

Road between combined &
head of St. Peter S.S. — 300

Top of St. Peter S.S. peak — 330

Top of ridge at top of
long hill — $\frac{490}{\text{subtracts } 15} = 475$

Reading where I took sample — 300

Lower level of loess — 230

Bottom of valley at turn from — 40

The highest point is marked
1096 on map, & is about 485
according to my readings.

Corrected readings:

Depot-street — 0
Top of hill N. — 220
Road betw. combined
St. Peter S.S. peak — 270 ap.
Top of " " " " — 300 ap.
Top of ridge on long
hill road — 490
Where I took sample — 260
Lower level of loess — 190
Base of long hill — 0

Aug. 5-1907

checked elevation of base
of long hill, and find
it same as depot.
This makes base of
long hill 40 ft., and
height of highest point,
about 440 ft.

Took photos:

5. Bluff N. of No. McGowan

6. " S. " " " (about 9.15)

Left N. McGowan at 9.50 am.

Day cloudy early, but brightened
before we left N. McGowan.

Above Warburton Jr.
appear numerous examples
of bare hills facing
S. These are mostly on
N. side valleys or cañons
leading down to Miss.

The slopes are very steep
& mostly devoid of large
plants. Patches of mesquite,
& scrub individual trees
occur.

The Wisconsin bluffs
are mostly bare on
faces, only narrow
having timber, - especially
notable up & down river
opposite Lansing.

A hundred miles as Lansing,
Iowa.

Box Elder

Cottonwood

Walnut

Red Elm

White Birch

False amygd.

Green ash

Wild grape

Chatter willow

Black oak

Red Oak

White Oak

Queen amaranth

Soft maple

White birch

Blackwood

Butternut

Sage horn Sumac

Green ash

American butternut

Wild plum

" Crab

Horn Maple

Pottery Trembling

Red elm

Ostrya

Salix nigra

interior

Carya amara

Shiny greenberry

Red osage

Black ash

Elm

1/2 red

Mo. honeyberry

another common

Aspen, etc.

Shrub

Red cedar

Above Lansing - 2 or 3
miles saw a magnificent
bed of Nebraskian in
flower.

At new albin there
are fine illustrations
of the bare faces of
hills, & it is otherwise
an inviting country for
field work.

On bare rocky hills, Reno, Nev.

Euphorbia corollata

Cercocarpus palmeri

Amaranthus canescens

Petalopsis verna

Physalis ~~*capitata*~~ ^{*candicans*} (only spec.)

Monarda —

Helianthus occidentalis

Quercus

Eriogonum fasciculatum

Lithospermum hirtum?

Helianthus scaberrimus

Ceanothus

Antennaria plantaginifolia

Lepachys pinnata

Salix (humilis or *laevigata*)

Rhus glabra

Polygonum limifolium

Rhus copallina



9.98

On the main side of
my ridge there is almost
no soil, ^{+ with everywhere} but on timbered
side rock is nearly all covered
in soil. Top has loess.

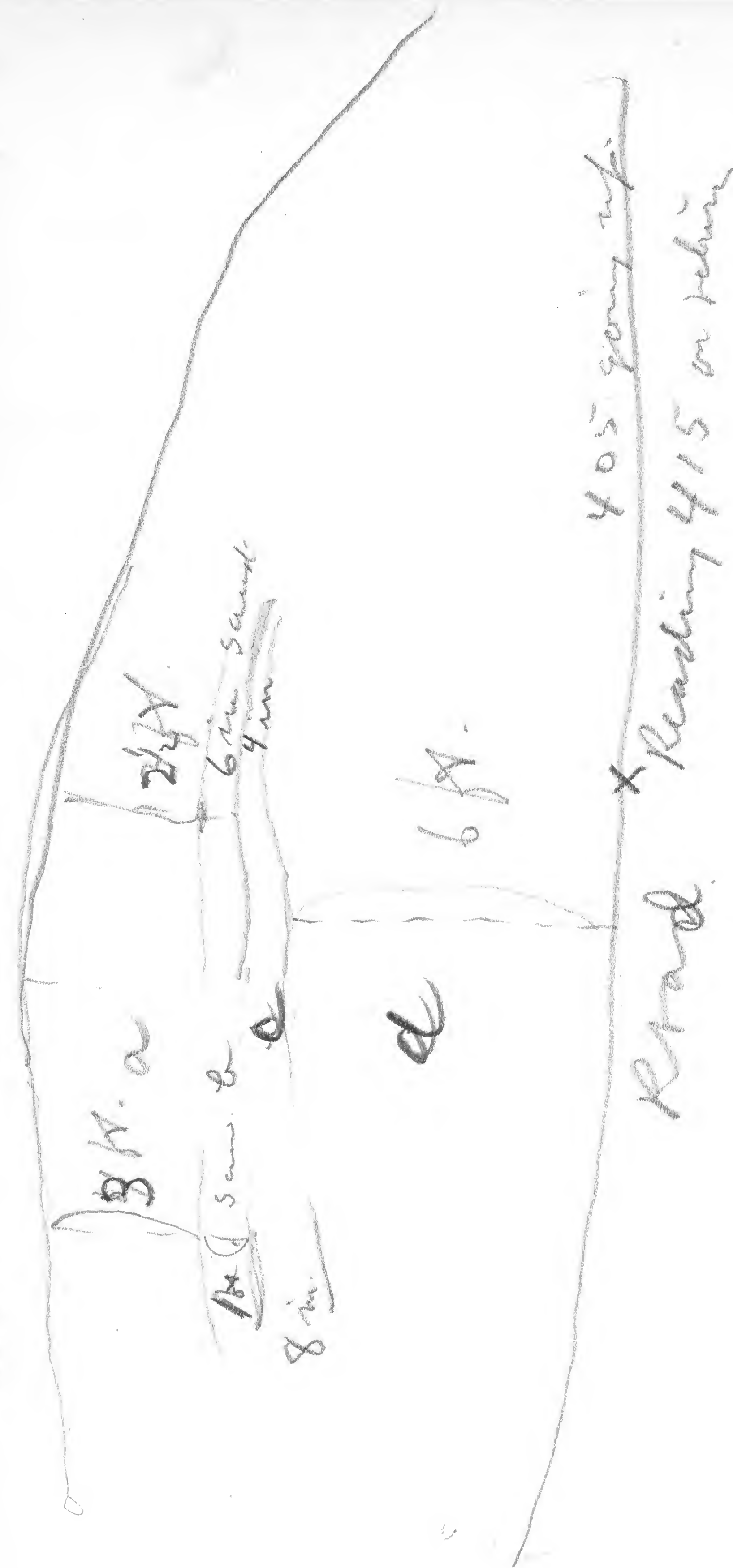
Took sample at 400 ft.
The loess, however, cannot
be deep, as rock
crops out on the S.W.
side of the ridge, near the
top.

Took a number of views of bare
hills, - all bare on exposed S.W.
slopes.

- 31
- 32
- 17
- 18
- 19
- 20
- 27
- 28

99

cut 1.



9100

cut 1

The upper 3 ~~ft~~ ft (a)
is crumbly, bluish
yellow loess. Below this,
& separated by a not sharp
line (some intergradation) is a
layer of laminated sand (b)
(loose) which may have been
washed or blown in.

This is separated from
c, by a very sharp
line, black (or dark brown)
with iron, but only a line.
The layer (c) is blue
loess of the pretty like,
laminated sand (or broken)
but has no iron tabs.
This is fossiliferous!

Below this changes rather
abruptly (not so sharply as
above) into interbedded
blue mud (joint clay?) ~~and~~
and sand, (d).
Geost appears in bed.

The shells were very
fragile (see box)

I recognized Luccinea arana ^{several}
Pyramidula striatella.

It seems that the blue loess
in all the driftless area
is the only fossiliferous, the
yellow loess being uniform
without fossils.

It is left, so far as I saw,
only on the lower slopes. The
rest was evidently eroded
before yellow was deposited.

10²⁰ Left Reno at 4.50 P.M.
The cuts out of Reno (2 near
by) seem to show 5 or 6 ft.
of loess & a lot of chert
or local stuff below.
Saw several such cuts
near - all are low
down -
then for quite a distance,
to Freeburg, there are no
cuts. The rounded bluffs
are still like those at Reno.
Beyond Freeburg the hills
grow lower (we are going up)
but they are still big knobs.
Ledges of rock crop out
everywhere near the top.
Ran up gradually until
near Calaveras we ran

out on what appears ⁴⁹³
to be a high rolling Kansan
plain.
My reading is 470 ft
Deficit at Reno was 0
Beyond Calaveras I could
see yellow loess on the
roads, & in a few low cuts
along R.R.
But several miles out
there are interappings
of St. Peter ss. clear
on top of rocks.
These seem to run on
N. side & are higher
than the plain to S.
This is like my old territory
above Harper, only more so.

Here rock comes quite
to surface in places.
There is here only a
light dressing of loess, -
probably not over 2 ft.
It may be 3 or 4 in places.
Wilmington Grove is right
on a ridge, and there is
a splendid view both N. & S.,
with more or less timber
(in patches) in sight, -
rougher toward S., more
rolling (& farther view)
to N.

Beyond Spring Grove - some
miles then across
limestone in cut &
loess is very thin

a mile farther on
while St. Peter's sh. shows
on top, & beyond is quite
a ledge, higher than the
R.R.

This is about a mile E.
of Newhouse.
At Newhouse (beyond) -

can see terrace-like
elevations - evidently
due to St. Peter's S.S.
Saw a little loess all
along - but it is
evidently nowhere thick.
Beyond Mabel the RR
cuts into rough (rolling
Kansan) timbered country.

106

But soon runs out into
a beautiful Kansan
plain, - to Proctor, -
but with scattered timber.

Low cut in yellow loess
about 1 mi. E. of Canton.
Beyond Canton the
Kansan plain is
especially fine,
more rock (limestone)
appears beyond Harmony.

Preston is in rougher
country, and we dropped
considerably.

Rained very much at night

Aug. 6, 1907

107

The loess at Preston as
far as I could see is
the ordinary yellow loess of
all my trip.

Left Preston at 8 am
& reached Mabel at 9.
Left Mabel with roads
very muddy, at 10 AM.
for the south.

S. of Mabel there is
a ledge of what appears
to be St. Peter's SS.

Cut 1 is on the hill just
S. of Mabel (sloping down toward
Mabel) This cut is about
6 ft. deep at deepest place -
9 ft. from ^{near base} ~~more than~~ $\frac{1}{2}$ way
~~up~~ to the top of hill.

cut 1. Matlah Overgrown

E. side

exposed

exposed

overgrown

Nothing but yellow loam in exposure.

This is lobular above, & inclined to be laminated below, - also more compact. I dug to base of 6 ft. bank & found iron

streaks, which indicate base. Duff is evidently just below. For an opposite view of road it is exposed in the gutter, and has only about 2 ft. of loam on it.

The 6 ft. on E. side includes about a foot of black soil.

Rock appears (seems to be base) toward base of this slope. Neither drips nor loam are deep.

Took sample of loam

4 ft. above base.

The drips exposed on W. side of road is old, & undoubtedly Kansan.

110 I dug down to 7 ft. at X
& found pebbles, 1 orthoclase,
1 dark, & grain of sand.
The loess changed into
this somewhat gradually
within 6 in.

About 6 1/2 ft. is clear loess.
Then a 1/2 ft. of iron bander
more much, still loess like
stuffs, then ~~green~~ (or quite
red) drift, ~~with~~ finer
~~part~~ above. The
transition here is very
usual where loess was
built up on drift.

The drift is rather on
W. side is redder than
loess, & has small boulders
(5 in.) & pebbles.

2
Curt 2

111 This is a shallow cut
on ~~next~~ flat hill to S. &
on N. side of it. It shows
only 2 or 3 ft. of loess
& soil, & below which
comes to surface, & on
upper part the red layer
is in evidence.

Took photos of cut 1

31 - Looking W.

32 - " E. view

Reached Hesper at 12⁵⁰ &

had dinner with the Reeds.

Left at 2 PM, going 2 mi. W.,
then 4 mi. S., then 1 mi. W. &
then S.

11/2
Loess is exposed along road W.
of Herpes, especially between
nos. 9 + 10, where there are
little irregularities in the
surface.
There is loess exposed along the
entire road that I traveled
to the south where there
are irregularities in the
surface. Where these
are greater, as along Canoe
cr., rock appears.
Occasionally I come see the
red "gumbo" exposed in the
road, indicating that drift
was not far away. This was
especially so on the first
four mile run S., the mile W., &

113
the next mile S.
I could see loess just about to
the Decatur Top. line. The
road then goes down to
the bottom, & rock, etc. appears.
Here be it recorded that I
have had today one of the
hardest experiences ^{of my field}
life. I was delayed ^{for 3/4 of an hour} by two
successive punctures near the
cross-roads in sec. 17, Canoe
Top. This was just sufficient
to give a storm, which had
been threatening most of
the forenoon, to catch up.
It caught me 2 miles
below, while I was still
5 mi. out of Decatur, and

114 this 5 mi certainly proved
a hard proposition. I dragged
the wheel over the first 3 mi
of this place (all but a $\frac{1}{4}$ of
a mile left given by a young
farmer) over the loose
surface, until my wheel
was choked with mud, my
feet sopping, my clothing
reeking with sweat, and my
tempers sadly out of gear.
Fortunately for me, the
last two miles was now
somewhat macadamized or
"gravelled" road, & this
was easier. Reached Decatur
about 9 P.M., cleaned my wheel
at Reed's Livery Barn, & put up

115
at the Winniechick Hotel.
The topography along the first 11
mi. is beautifully Kansan.

Aug. 7, 1907

Left Decatur via the
C.R. & P. at 6:40 A.M.
Saw a good exposure near
small creek just W. of
Hordness. It showed
several feet of yellow
loam, evidently growing
more compact below.

Small cuts at Postville
Ia. (on the Decatur part of
line) show yellow loam
all the topography

here is Kansas
 Farm house on right hand
 side coming into Clearmont
 from the north has a
 nice grove of Balsams.

It is a cream-colored
 brick house.

Löss appears in occasional
 cuts - to less than 2 mi. S. of W. Union.
 Near ~~Pratt~~ ^{Pratt} I could
 see a red drift gravel
 under loess - just before
 entering from N., on right

hand side.
 Saw what certainly appeared to
 be *Cratogeomys* ~~montanus~~
 between W. Union & Pratt.

Coming in to W. Union (from
 N.) there is a big
 moving loess on hillside.
 It is yellow loess as
 far as I could see.

Drift (red) shown in first
 wagon road ~~crossed~~ by RR
 S. of W. Union. It is
 to right of RR. (i.e. the cut
 along the wagon road)

Only a short distance
 beyond this the down
 plain begins.

From this on, there
 is the usual boulder-
 decked down plain.
 The low cuts show yellow
 loess.

Fayette co. - Linn Co.

Muscatine co.
Scott & Clinton

✓ Bremer & Butler.

Linn co

Iowa co.

Illinois
Canton

Ohio -

120 Far western trip.

Waltham

Walth E. on C. & N. W. from
Council Bluffs.

Between Glenwood + river.

Hamburg hill.

Nebraska City - boring.

North Platte + intermediate
points.

Trip beyond Clarkson.

Omaha

Sioux City.

S. E. of Sioux City -

Adair co.

Photos - I common at top + first
slides in - so that numbers must be kept.

Box 1 -

on - Laminated loess cut 1 - Farley, Ia. Aug 31
n - S. end of cut 2 - 2 loams. " " "

15 } Segmented slopes. See map of Whitewater
16 } July 31 - 1907

5 } view of cut 2 - 2 loams. Farley -
6 } July 31 - 1907

17 } cut 16, 2 loams - red loam below
18 } S. of Edward. July 31 - 1907

31 - } Looking down stream from Twin Springs
32 - } Aug. 1, 1907

27 - Rock cut along C. & N. W. near Twin Springs. Aug 1

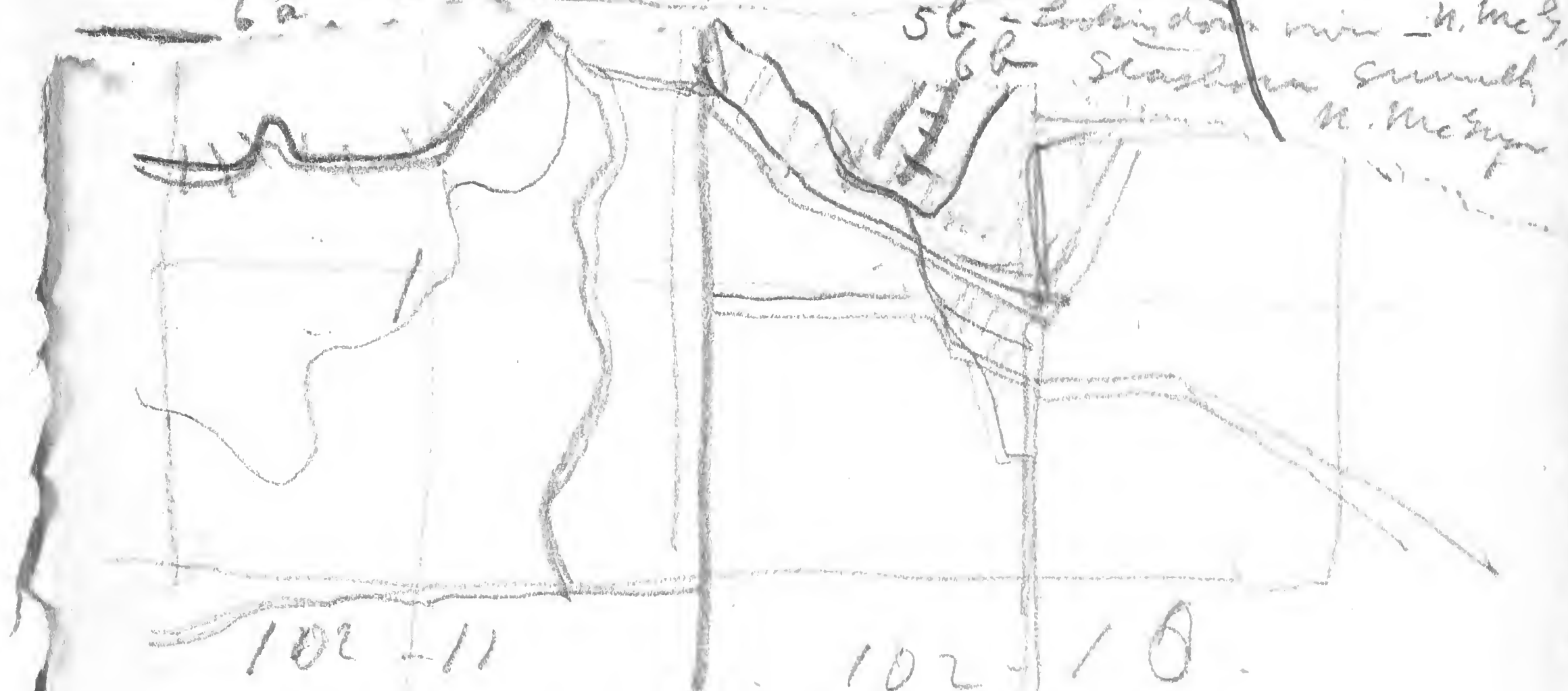
28 - Rock cliff 27? " " " "

5a Looking S.E. from high ridge - Aug. 1 - 07

6a Looking up stream. " " "

5b Looking down river - N. Me G.

6b Stash on summit
N. Me G.



Carimona Trip.

Box 2. (again reverse)

31 } airt. Farley,
32 } Aug. 2-1907

27 } cut 1. Bellevue - 30 ft below
28 } top. Aug. 3, 1907

17 } Savaris cut (cut 11) Bellevue.
18 } Aug. 3, 1907 - more distant view.

5 } near view of same.
6 }

19 Looking up river - N. W. Sugar Aug 4-07

20 - a little S. of Prairie du Chien "
my Bridgeport Terrace to right.

31a Looking E. over Prairie du Chien

32a " up the river,

27a " obliquely N.E. -

28a " " S.E. - me from

17a Looking down - N. me from

18a

S.E. of Sioux City -

Adair co.

45
16

27
28v

31
32

17
18

19v
20v

103-10

103-11

Fontana Twp

Carroll Twp



102-11

102-10

Carmona Twp.

